REMARKS

Claims 1-3 are pending in this application. Claims 1 and 3 have been amended herein.

The amendments to claims 1 and 3 are made for clarity only. The term "threaded portion" has been amended to --shank portion-- in claims 1 and 3, because this portion of the shank has not yet been threaded at the time of the cold forming step. Applicant submits that there is no change in the scope of the claims by this amendment, and that the amendment does not constitute new matter.

Claims 1-3 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kilinskas et al. (U.S. Patent No. 4,296,512) in view of Badger et al. (U.S. Patent No. 5,947,827).

The rejection of claims 1-3 is respectfully traversed, and reconsideration of the rejection is respectfully requested. As noted above, claims 1 and 3 have been amended for clarity to change "threaded portion" to "shank portion", but this amendment is for clarity only and is not intended to overcome the rejection.

The Examiner cites Kilinskas (column 4, lines 1-10) as disclosing a method of manufacturing a bolt or screw from a wire material. In this portion of the reference, step (b) is described, in which a cooled (see column 3, line 56, to column 4, line 2) wire or rod is drawn through a die at a strain sufficient to provide a tensile strength higher than its incoming tensile strength and in the range of about 75 ksi to 160 ksi. The area of the wire or rod is reduced by at least about 3 percent. Both the drawing step and the die are stated to be conventional (column 4, line 22). Step (b) is a "cold (or cryogenic) drawing" step (see column 3, line 52; column 5, line 8). The Examiner apparently

considers this portion of the reference to be analogous to the "cold forming" step of claim 1 of the present invention.

Applicant notes that Kilinskas' step (b) is a drawing process, and is not analogous to the "cold forming" step of the present invention. On page 5, lines 8-10, Kilinskas states: "After cryogenic drawing step (b), the wire or rod is divided into slugs, which are cold headed to provide the fastener as stated in step (c)." Kilinskas also discusses "cold heading" in column 5, lines 8-27, and indicates that this involves upsetting the head of the fastener and may include extrusion of the shank. Therefore, Kilinskas' step (c) is most analogous to the cold forming step in the present claims.

However, Kilinskas describes the cold heading step (c) as providing a fastener; that is, it is a deformation process in which a part of a cylindrical metal slug "is forced by compression to flow through a suitably shaped aperture in a die to give a product of a smaller but uniform cross section" (column 5, lines 30-33), while leaving behind an enlarged head portion, with the tensile strength given in the drawing step (b). By contrast, in the present claims, the wire material is cold formed by a closed extrusion technique: "a head portion is bulged as a result of axial compression of the cold formed wire material and a shank portion formed of part of the bolt material extruded under said axial compression and radially compressed". This **is not disclosed** in Kilinskas.

The Examiner also cites column 2, lines 35-38 of Kilinskas as disclosing a "degree of working defined in terms of a natural logarithm". The Examiner apparently considers these lines to limit a "cold forming" step in the reference. However, this portion of Kilinskas is only a **definition**

of "**true strain**" as "the natural logarithm of the ratio of the final length of the rod or wire divided by its initial length prior to mechanical deformation," and this is used in the definition of the parameter Md_{30}. There is, in fact, **no limitation on the value of "true strain"** in either of Kilinskas' step (b) or (c). Moreover, it is impossible to anticipate the dislocation density and predict the mechanical property of the metal product by a degree of working merely from the change in the length.

By contrast, in the present claims, the lubricated austenitic wire material is cold formed "within a degree-of-working range of from 0.5 to 1.5 as defined in a natural logarithmic value of the working distortion ...." The ratio of change in the cross-section of every portion of work during the cold forming step is indicated in a natural logarithmic value. This natural logarithmic value of the deformation ratio of the whole work under a continuous forming step from the state of material to that of the completed product is called the "degree-of-working" in the present invention. Kilinskas **neither discloses nor suggests such a limitation**.

The Examiner cites Badger for the formation of the threads. That is, Badger is cited to make up for the lack of disclosure in Kilinskas of "subjecting the shank portion to form rolling" in amended claim 1. However, Badger does not provide any disclosure of or suggestion for the cold forming and degree-of-working limitation of the present claims.

Claim 2 recites that the lubricant is removed and the material of the bolt is subjected to passivation. However, **Kilinskas fails to disclose removal of the lubricant**. The forming of a

lubricant coating on the surface of the austenitic stainless steel wire material is a requisite for forcing said material through the die. However, the stainless steel material has a tendency to show a better corrosion resistance if a very thin passivation film is formed on a clean surface. For this purpose, the once formed lubrication film is required to be removed before subjecting the material to the passivation processing. This feature is not disclosed in Kilinskas.

In addition, Kilinskas does not disclose "passivation" as recited in claim 2. The reference discloses "aging" in column 5, lines 1-20, to indicate that the fastener is exposed to the atmosphere to let the fastener surface take its own course in being oxidized. The "aging" is different from intentionally subjecting the material to any known passivation process as in the present invention.

Finally, with regard to claim 3, Kilinskas discloses in column 4, lines 2-9, that the tensile strength of the wire after the drawing step of 518 MPa to 1104 Mpa. Applicant notes that the range in Kilinskas barely overlaps the tensile strength range in claim 3, which is at least 1100 Mpa, which meets meet the revised ISO standard (3506) for the stainless steel bolt. The bolts of the present clearly achieve a property not achieved by those of Kilinskas.

To summarize, the combination of Kilinskas and Badger does not provide the limitations of the present claims of the closed extrusion, the degree-of working values, the removal of lubricant, the passivation process, or the resulting tensile strength. Applicant submits that no *prima facie* case of obviousness can be made using these references, and that claims 1-3 are non-obvious over

Kilinskas and Badger, taken separately or in combination.

In view of the aforementioned amendments and accompanying remarks, the claims, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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